

Power Budget - AtLAs

Autonomous Lifeguard Group

Item #	Device	Power Source	Power Rails (V)			Supply Current (mA)		Power Consumption (mW)	
			Min	Typical	Max	Min	Max	Min	Max
1	uBlox LEA-6 GPS	NiMH-1 (5xAA)	2.70	3.30	3.60	10.91	36.67	36.00	121.00
1a	MAXIM GPS LNA	NiMH-1 (5xAA)	1.60	3.30	3.60	4.10	5.60	13.53	167.00
2	MMA8452 Accelerometer	NiMH-1 (5xAA)	1.95	3.30	3.60	0.01	0.17	0.02	0.56
3	Xbee with PCB Antenna	NiMH-1 (5xAA)	2.80	3.30	3.40	55.00	250.00	181.50	825.00
3a	Xbee with RPSMA Antenna	NiMH-1 (5xAA)	2.80	3.30	3.40	55.00	340.00	181.50	1122.00
4	Sonar @ 3.3V	NiMH-1 (5xAA)	3.00	3.30	5.50	2.10	50.00	6.93	165.00
4a	Sonar @ 5V	NiMH-1 (5xAA)	3.00	5.00	5.50	3.40	100.00	17.00	500.00
5	Thermal Array	NiMH-1 (5xAA)	2.20	2.60	3.60	5.00	7.00	13.00	25.20
6	GH100 Microwave Motion Sensor	NiMH-1 (5xAA)	4.75	5.00	5.25	30.00	40.00	150.00	200.00
9	Barometer	NiMH-1 (5xAA)	1.62	3.30	3.60	0.00	1.00	0.00	3.30
10	RFID Excalibur K9classifiedp K9 Alarm	NiMH-1 (5xAA)	9.00	12.00	13.00	0.00	750.00	0.00	9000.00
8	Motors and ESC	LIPO-1 (3S)	7.40	9.25	11.10	0.00	35,000.00	0.00	388,500.00
8	Motors and ESC	LIPO-2 (3S)	7.40	9.25	11.10	0.00	35,000.00	0.00	388,500.00
11	Rotating Beacon Light	AA Batteries (2x)							

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Notes	Datasheet Link
3DR board has battery and LDO	blox.com/images/downloads/Product_Docs/LEA-6_ProductSummary_%28GPS
Xbee pro uses 6x more current than Xbee	http://pdfserv.maximintegrated.com/en/ds/MAX2659.pdf t.net/datasheets/Sensors/Accelerometers/MMA8452Q.pdf heets/Wireless/Zigbee/XBee-Datasheet.pdf http://www.sparkfun.com/datasheets/Wireless/Zigbee/XBee-Datasheet.pdf http://www.maxbotix.com/documents/MB7066-MB7076_Datasheet.pdf http://www.maxbotix.com/documents/MB7066-MB7076_Datasheet.pdf
More distance	http://www.melexis.com/Asset/Datasheet-IR-thermometer-16X4-sensor-array-MLX90620-
the thermal array will operate at the most sensitively at 2.6V	http://pub.ucpros.com/download/GH100Datasheet.pdf http://www.mipovzuc.com/datasheets/Sensors/Precision/BST-BMP085-DS000-
1mA during conversion, otherwise 0 Pg. 23: The source connection must have at least a 15 Amp capacity at all times	http://www.caralarm.com/manuals/k-9/k9-mundial.pdf http://www.hobbytown.com/shop/Reaktor-3500kv-Brushless-Motor-Combo/
Powered by 2S or 3S LiPo batteries.	
Uses batteries.	

Power Budget - ComPAS

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Item #	Device	Power Source	Power Rails (V)			Supply Current (mA)		Power Consumption (mW)	
			Min	Typical	Max	Min	Max	Min	Max
1	uBlox LEA-6 GPS	NiMH-2 (5xAA)	2.70	3.30	3.60	10.91	36.67	36.00	121.00
1a	MAXIM GPS LNA	NiMH-2 (5xAA)	1.60	3.30	3.60	4.10	5.60	13.53	167.00
3	Xbee with PCB Antenna	NiMH-2 (5xAA)	2.80	3.30	3.40	55.00	250.00	181.50	825.00
3a	Xbee with RPSMA Antenna	NiMH-2 (5xAA)	2.80	3.30	3.40	55.00	340.00	181.50	1122.00
4	Sonar @ 3.3V	NiMH-2 (5xAA)	3.00	3.30	5.50	2.10	50.00	6.93	165.00
4a	Sonar @ 5V	NiMH-2 (5xAA)	3.00	5.00	5.50	3.40	100.00	17.00	500.00
7	12-bit Rotary Encoder @ 3.3V	NiMH-2 (5xAA)	3.00	3.30	3.60	16.00	21.00	52.80	69.30
7a	12-bit Rotary Encoder @ 5V	NiMH-2 (5xAA)	4.50	5.00	5.50	16.00	21.00	80.00	105.00
9	Barometer	NiMH-2 (5xAA)	1.62	3.30	3.60	0.00	1.00	0.00	3.30

Power Budget - ComPAS

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Notes	Datasheet Link
3DR board has battery and LDO	blox.com/images/downloads/Product_Docs/LEA-6_ProductSummary_%28GPS http://pdfserv.maximintegrated.com/en/ds/MAX2659.pdf
Xbee pro uses 6x more current than Xbee	heets/Wireless/Zigbee/XBee-Datasheet.pdf http://www.sparkfun.com/datasheets/Wireless/Zigbee/XBee-Datasheet.pdf http://www.maximintegrated.com/documents/MB7066-MB7076_Datasheet.pdf
More distance	http://www.maximintegrated.com/documents/MB7066-MB7076_Datasheet.pdf
We will run these at 5 volts, there is an internal step down.	http://www.ams.com/eng/content/download/1288/7223/496
We will run these at 5 volts, there is an internal step down to 3.3V.	http://www.ams.com/eng/content/download/1288/7223/496 http://dlnmh9ip6v2uc.cloudfront.net/datasheets/Sensors/Pressure/BST-BMP085-DS000-
1mA during conversion, otherwise 0	sure/BST-BMP085-DS000-

Power Budget - Totals

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System	Power Source	Power Consumption (W)			Current Consumption (A)			Notes
		Min	Avg	Peak	Min	Avg	Peak	
Atlas	NiMH-1 (5xAA)	0.41	5.78	11.14	0.11	0.69	1.28	For electronics, 9.6V, 8xAA 2000mAh TENERGY, 8.5oz
	LIPO-1 (3S)	0.00	194.25	388.50	0.00	17.50	35.00	For motors (1 each), 11.1V (3S) 5000mAh Venom, 15.8oz, 55.5 Wh, Cont. Discharge: 20C (100A), Charge Rate: 1C (5A), Max Burst Rate: 40C (200A), Max Volts/pack: 12.6V, Max Volts/cell: 4.2V, Min Discharge Volts/pack: 9.0V
	LIPO-2 (3S)	0.00	194.25	388.50	0.00	17.50	35.00	(see LIPO-1 above)
	Batteries (2x)							For siren
Compas	NiMH-2 (5xAA)	0.51	1.68	2.84	0.14	0.45	0.75	(see NiMH-1 above)

Power Budget - Totals

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Datasheets

[energy.com](#) [.tenergy.c](#)
[/Tenergy-](#) [om/10306](#)
[http://www.v](#)
[enom-](#)
[group.com/](#)
[20C-3S-](#)
[5000mah-](#)
